

AMENDMENTS TO THE CLAIMS:

The following listing of claims replaces all prior listings, and all prior versions, of claims in the application:

Listing of Claims:

Claims 1.-7. (Cancelled)

8. (Currently Amended) A method of processing a semiconductor sample having ~~a laminate structure comprising adjacent films, of different ionization tendencies, of an Al alloy film on a substrate, and a refractory metal film directly laminated on the Al alloy film, on a semiconductor substrate,~~ whereby electrolytic corrosion could be generated and accelerated due to battery action between films of the laminate, including said adjacent films the refractory metal film and the Al alloy film, comprising the steps of:

(i) etching the refractory metal film directly laminated on the Al alloy film, and the Al alloy film ~~said semiconductor sample having said laminate structure,~~ using a resist mask, by means of a first plasma formed in a first gas with first processing conditions while applying radio-frequency bias power to the sample, residual corrosive compounds being left on the refractory metal film and the Al alloy film ~~sample~~ after the etching,

(ii) after step (i), ashing the ~~sample~~ resist mask on the refractory metal film and said surface of the refractory metal film and the Al alloy film etched in step (i) by means of a second plasma to remove at least the resist mask and said residual corrosive compounds formed in step (i), said second plasma being formed

in a second gas and with second processing conditions, said ashing being carried out at a second location different from a first location where said etching is carried out, and wherein the semiconductor sample ~~having the laminate~~ is transferred from said first location to said second location through a chamber forming an atmosphere having a pressure reduced from atmospheric pressure,

(iii) contacting a surface of the refractory metal film and the Al alloy film ~~said sample~~ etched in step (i) and ashed in step (ii) with at least one liquid which effects at least one of (a) removal of said residual corrosive compounds formed in step (i) which were not removed in step (ii) and (b) passivation of said surface etched in step (i) and ashed in step (ii), and

(iv) after step (iii), drying the surface of the refractory metal film and the Al alloy film which is etched sample,

wherein steps (i) - (iv) are performed using a single sample processing apparatus.

9. (Original) A method according to claim 8, wherein step (iv) takes place in the same environment as step (iii).

10. (Original) A method according to claim 8, wherein the drying uses an inert gas.

11. (Original) A method according to claim 8, wherein step (ii) uses oxygen as part of the second gas.

12. (Original) A method according to claim 8, wherein step (iii) is carried out in an inert gas atmosphere.

13. (Original) A method according to claim 8, wherein step (iii) is carried out in an atmospheric atmosphere.

14. (Original) A method according to claim 8, wherein step (iv) is carried out in an atmospheric atmosphere.

15. (Original) A method according to claim 8, wherein step (iv) includes introducing a dry gas to the sample.

16. (Cancelled).

17. (Original) A method according to claim 8, wherein step (ii) removes the whole of said resist mask.

Claims 18.-26. (Cancelled).

27. (Currently Amended) A method of processing a semiconductor sample having ~~a laminate of adjacent layers of an Al alloy layer and a refractory metal layer on a semiconductor substrate~~ an Al alloy film formed on a substrate, a refractory metal film directly laminated on the Al alloy film, and a resist mask formed on the refractory metal film ~~said laminate, said adjacent layers having different ionization~~

tendencies from each other, whereby corrosion could be generated and accelerated by electrolytic corrosion due to battery action between the refractory metal film and the Al alloy film layers of the laminate, including said adjacent layers having different ionization tendencies from each other, comprising the steps of:

(i) etching the refractory metal film directly on the Al alloy film, and the Al alloy film, said layers of said laminate through said resist mask, by means of a first plasma, so as to form an etched sample having an etched shape which corresponds to a pattern of said resist mask, while applying radio-frequency bias power to the sample, residual corrosive compounds from the etching being left on the etched sample refractory metal film and the Al alloy film;

(ii) after step (i), treating the etched sample surface of the refractory metal film and the Al alloy film by means of a second plasma, to remove said residual corrosive compounds formed in step (i) and to remove said resist mask, said treating being carried out at a second location different from a first location where said etching is carried out, and wherein the semiconductor sample ~~having the laminate~~ is transferred from said first location to said second location through a chamber forming an atmosphere having a pressure reduced from atmospheric pressure;

(iii) contacting a surface of ~~said semiconductor sample~~ the refractory metal film and the Al alloy film etched in step (i) and treated in step (ii) with at least one liquid, to remove said residual corrosive compounds which were not removed in step (ii); and

(iv) after step (iii), drying the surface of the refractory metal film and the Al alloy film ~~semiconductor sample~~,

wherein the steps (i) - (iv) are performed in a single sample processing apparatus.

Claims 28.-66. (Cancelled).

67. (Currently Amended) A method according to claim 8, wherein the residual corrosive compounds left on the etched sample, after the etching, includes residual corrosive compounds left in material of the resist mask remaining on the etched surface of the refractory metal film and the Al alloy film sample.

68. (Currently Amended) A method according to claim 27, wherein the residual corrosive compounds left on the etched sample, after the etching, includes residual corrosive compounds left in material of the resist mask remaining on the etched surface of the refractory metal film and the Al alloy film sample.